

ABSTRACT OF THE DISCLOSURE

A method for manufacturing a capacitor using a tantalum oxy nitride (TaON) film in a process for a semiconductor device. More particularly, a method for
5 manufacturing a capacitor which reduces a number of steps and thus increases yield by in-situ performing P-doping after forming a MPS (Metastable Poly Silicon) on a lower electrode and forming a nitride film before forming a tantalum oxy nitride film to prevent the concentration of
10 phosphor contained in the lower electrode from being reduced by removing the phosphor on the surface of the lower electrode in a cleaning process between the above two steps, for thereby increasing the capacitance of the capacitor.